

CLAIMS

What is claimed is:

1. A method of making a MOSFET, comprising:
providing a substrate having a gate oxide and gate thereon;
performing a source/drain extension implant;
forming a spacer on the gate;
performing epitaxy to form raised source/drain regions;
forming a silicide on the gate and source/drain regions;
removing the spacer;
performing a halo implant; and
completing the MOSFET.

2. A method as recited in claim 1, wherein the source/drain extension implant comprises an approximately vertical implant to a depth of approximately 10 nm to 30 nm of ions selected from the group consisting essentially of B^+ , BF_2^+ , As^+ , Sb^+ , P^+ .

3. A method as recited in claim 1, wherein the spacer comprises a nitride.

4. A method as recited in claim 1 wherein the halo implantation comprises an approximately vertical implant to a depth of approximately 40 nm to 100 nm of ions selected from the group consisting essentially of B^+ , BF_2^+ , Ga^+ , In^+ , As^+ , Sb^+ , P^+ .

5. A method of making a MOSFET, comprising:
providing a substrate having a gate oxide and gate thereon;
performing a vertical source/drain extension implant to a depth of approximately 10 nm to approximately 30 nm;
forming a spacer on the gate;

forming raised source/drain regions;
 forming a silicide on the gate and source/drain regions;
 removing the spacer;
 performing a halo implant; and
 completing the MOSFET.

6. A method as recited in claim 5, wherein the spacer comprises a nitride.
7. A method as recited in claim 6, wherein the spacer is removed by wet chemistry.
8. A method as recited in claim 5, wherein the source/drain regions are formed by epitaxy.
9. A method as recited in claim 5 wherein the halo implantation comprises an approximately vertical implant to a depth of approximately 40 nm to 100 nm of ions selected from the group consisting essentially of B^+ , BF_2^+ , Ga^+ , In^+ , As^+ , Sb^+ , P^+ .
10. A method of making a MOSFET, comprising:
 providing a substrate having a gate oxide and gate thereon;
 performing an approximately vertical source/drain extension implant to a depth of approximately 10 nm to approximately 30 nm;
 forming a nitride spacer on the gate;
 performing epitaxy to form raised source/drain regions;
 forming a silicide on the gate and source/drain regions;
 removing the spacer;
 performing an approximately vertical halo implant to a depth of approximately 40

nm to approximately 100 nm; and
completing the MOSFET.

11. A method as recited in claim 10 wherein the halo implantation comprises implantation of ions selected from the group consisting essentially of B^+ , BF_2^+ , Ga^+ , In^+ , As^+ , Sb^+ , P^+ .